TOPIC: Inspection and Maintenance of Fire Service Power Tools

TIME FRAME: 2:00

LEVEL OF INSTRUCTION: Level I

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will identify the inspection and maintenance procedures for fire service power tools

Standard: With a minimum of 80% accuracy

MATERIALS NEEDED:

- Appropriate visual aids
- Audio visual equipment
- Assorted power tools

REFERENCES:

- IFSTA, Essentials of Fire Fighting, 5th Edition, Chapters 8 and 9
- Power Equipment Manufacturer's Recommendations

PREPARATION: Emergency operations involve the use of a variety of power tools. Regular inspection and maintenance of these tools is essential for safe and efficient fire ground operations.

PRESENTATION	APPLICATION

I. FIRE SERVICE POWER TOOLS

What power tools are used by your Department?

A. Internal Combustion Engines
   1. Generators
   2. Chain saws
   3. Circular saws
   4. Pole saws
   5. Specialized pumps
      a. Floto pumps
      b. Portable pumps
   6. Blowers (PPV)
   7. Smoke ejectors

B. Pneumatic
   1. Air chisels
   2. Air bags
   3. Air hammers

C. Electric
   1. Cutting devices
   2. Blowers (PPV)
   3. Smoke ejectors

D. Hydraulic
   1. Spreaders/wedges/Rams
   2. Rescue and extrication tools
   3. Cutters

II. INTERNAL COMBUSTION ENGINE INSPECTIONS AND MAINTENANCE

A. Daily
   1. Check fluid levels

PRESENTATION	APPLICATION
	Refer to manufacturer's specifications
a. Fresh fuel	
b. Lubrication reservoirs full	
2. Clean all surfaces	
	Demonstrate using available equipment
3. Check for leaks	
4. Check for rust	
5. Check for loose and missing hardware	
B. Weekly	
1. Start engine and allow to warm up	
	Refer to manufacturer's specifications
2. Replenish fluid reservoirs	
3. Check spark arrester	
C. After each use	
	Refer to manufacturer's specifications
1. Restore fluid levels	
a. Proper fuel/oil mixture	
2. Clean air filter	
3. Remove all debris and dirt from all surfaces	
4. Inspect for damage	
5. Make sure unit functions properly	
III. PNEUMATIC	
A. Weekly	

PRESENTATION	APPLICATION
	As per manufacturer's recommendations
1. Air source	Demonstrate using available equipment
a. Operate system	
b. Check for adequate pressure	
c. Check for leaks	
d. If using SCBA compressed air cylinder, check hydrostatic test date	
2. Hoses	
a. Check for cracks	
b. Check for contamination	
c. Clean	
3. Couplings	
a. Check for smooth operation	
b. Check for cracks	
c. Lubricate as needed	
4. Air bags	Maintain as per manufacturer's specifications
a. Keep dry	
b. Check for cracks	
c. Clean as needed	
B. After each use	
1. Inspect for damage	
2. Clean	
3. Lubricate as needed	
4. Ensure air supply is replenished	

PRESENTATION	APPLICATION
IV. ELECTRIC TOOLS	
A. Weekly	
1. Inspect cords and plugs for damage	Demonstrate using available equipment
2. Run equipment to check operation	
3. Clean	
B. After each use	
1. Clean thoroughly	
2. Inspect cords and plugs for damage	
C. Grounding of some electrical equipment may be required if generator is not protected by a Ground Fault Interruption (GFI)	As per local policy
V. HYDRAULIC TOOLS	
A. Weekly	
1. Check for fluid leaks	
a. Cracks in pump	
b. Leaks at seals	
c. Leaks in hoses	
d. Leaks at couplings	
2. Check fluid level in reservoir	
a. Visual	
b. Dip stick	
B. After each use	
1. Check for fluid leaks	
2. Check fluid levels in reservoir	
3. Check condition of hoses and couplings	
a. Should be done in conjunction with cleaning	

PRESENTATION	APPLICATION

4. According to manufacturer's recommendations

VI. INSPECTION OF POWER TOOL ATTACHMENTS

A. Spreaders, Wedges, Cutters, and Rams
   1. Clean
   2. Free of defects
      a. Nicks
      b. Burrs
      c. Cracks
      d. Rust
      e. Pits
      f. Chips
   3. Properly aligned

B. Chains and Hooks
   1. Clean
   2. Free of defects
      a. Deformity
      b. Cracks
   3. Rust
   4. Pitting
   5. Excessive wear
   6. Chipped Teeth
   7. Evidence of overloading or other abuse
   8. Integrity and strength of attachment point and adapters
   9. Proper tension adjustment

SUMMARY:

Every firefighter should have the knowledge required to inspect and maintain the power tools used by their department. Whether powered by air, water, electricity, hydraulic pump or internal combustion engine each is essential to effective fireground operations and must be kept in good working order.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).